

NOTABLE FERNS ON BEAR MOUNTAIN, HEBRON, NEW HAMPSHIRE. On July 2, 1969 Frederic Steele and I paid a first visit to Bear Mountain in Hebron having been impressed by its appearance on the topographic map, but more particularly by some prominent ledges on its southeastern side which we observed from a clearing. The southern slope of Bear Mountain is mostly a well developed hardwood forest with some stonewalls toward the base indicating earlier fields or pasture clearings. These are soon left behind on the upward climb and give way to a rich forest habitat of northern hardwoods with large trees of *Acer saccharum*, *Fraxinus americana*, *Betula alleghaniensis*, *Tilia americana* and even some fine specimens of *Juglans cinerea* below the ledges. The forest trees seemed to be somewhat unusual for west-central New Hampshire and also the character of lesser plants — the ferns and woodland herbs. There was an abundance of *Botrychium virginianum*, other *Botrychiums*, *Athyrium thelypteroides*, *Adiantum pedatum*, *Caulophyllum thalictroides*, *Osmorrhiza Claytoni*, *Carex plantaginea* and *Dentaria diphylla* and occasional plants of *Panax quinquefolius*. Earlier in the season *Dicenta* *Cucullaria* must be there in abundance as shown by scaly bases still in evidence. This attractive array of species prepared us in a sense for some interesting botanizing farther on.

We approached the ledges a bit too far to the west on this first trip to strike the richest habitats for ferns. We did however find some good specimens of *Cystopteris bulbifera* midway up the ledges and shortly thereafter encountered a few plants of *Dryopteris Goldiana* and *Polystichum Braunii* var *Purshii*. By this time we were tired after a full afternoon of plant hunting and were satisfied to have discovered three rare ferns, one of which, the Bulblet-bladder Fern, was well out of its New Hampshire range, the other two somewhat so. In fact, *Cystopteris bulbifera* is known from Coös County in townships that touch the Connecticut River, from Grafton County also near the River and in Sullivan County on calcareous ledges and in rich woods of the Connecticut Valley in the township of Plain-



field. *Dryopteris Goldiana* is reported by Seymour (1969) from Coös County, Lyman in Grafton County and Alstead in Cheshire County, all except the Alstead station being in northern New Hampshire. *Polystichum Braunii* var *Purshii* again is perhaps less disposed to inhabit calcareous soil but is northern in its New Hampshire distribution and in Hebron occurring at about its southern limit of range in the State.

In the summer of 1970 Steele and I instituted a fern trip to the area for the Audubon Society of New Hampshire but we failed to reach the "ledges" because we were too far to the west and the dense forest hid them from view.

It was my feeling that we had not yet exhausted the ferns of Bear Mountain. Consequently in late July of this year in company with Dr. William Yeo and my student, David Conant, I again attacked the mountain. This time we worked our way up the western side of the ledges to the top and after lunch and near catastrophe, occasioned by "yellow jackets" and a bad fall, descended gingerly to the base of the ledges on the eastern side where quantities of the *Polystichum*, *Dryopteris Goldiana* and *Cystopteris bulbifera* were growing luxuriantly all together amongst fallen boulders, at times carpeting them. While finding nothing new, we had by this time found a good place for a return trip. On August 7 I led the second annual Audubon Fern trip with every expectation of uneventfully climaxing the excursion with the visit to the base of the ledges. Everything went well; we found the anticipated ferns and began the descent from the cliff base through a particularly lush growth of fern fronds. To my astonishment, I soon found myself standing almost waist-high among fronds of *Athyrium pycnocarpon*, the narrow-leaved spleenwort. I had seen this before in Vermont but never in New Hampshire and of course realized it was a good find. Someone happily had brought along Edith Scamman's "Ferns of New Hampshire". We learned that this fern was known from Alstead in New Hampshire where it had been collected by Helen Noyes (later Mrs. Hollis Webster) and from Hanover where it was discovered by Mary Hitchcock. Specimens of her col-



lecting are present in the herbarium of the University of New Hampshire and in the Jesup herbarium at Dartmouth College, that at Durham bearing the date 1876. The Alstead station was reported by Helen Noyes (1900). A specimen presumably from there was collected by E. F. Williams in 1901 and is present in the New England Botanical Club Collection. Rugg (1948) discussed the Hanover occurrences for *Athyrium pycnocarpon* pointing out that the original Hitchcock station had apparently been destroyed but that a second locality for it in the northern part of Hanover had been discovered in 1943. The most recent specimen from this station in the U.N.H. herbarium was collected in 1947 by H. G. Rugg and J. P. Poole.

Specimens of the four species of ferns particularly discussed in this paper from Bear Mountain are deposited in the New England Botanical Club Herbarium (NEBC) and that of the University of New Hampshire (NHA).

I am in debt to David Conant for expert guidance to the "ledges" in Hebron on our most recent Audubon trip and for calling the article by Helen Noyes to my attention.

#### LITERATURE CITED

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